The secret of this magic fortress is the value of *neutral gray*. To parody Goethe: *Grau ist eine ganz besondere Farbe*. Gray (neutral) is a tint of a very special kind. It is the epitome or synthesis of all other colors in turn, including that color positive and negative of color, black-and-white. Its use precludes the necessity of an intimate acquaintance with color combinations. You do not have to puzzle over a given color and say, this is blue *plus* red *plus* green *plus* violet. You have only to say, this is blue plus so much (or approximately so much) neutral gray, and you have it. All this may be rice to the initiated, but it is still "caviar to the general."

Once you get the idea you cannot get away from the color-file. It has the ultimate authority of simplicity, of logical sequence, and of comprehensiveness. One even ventures to hope that such a color-file may one day be actualized in glass or blocks of painted wood, as a recognized essential of the color-worker's apparatus. With such a device one might, for instance, by lifting off the top layer of white prisms survey all possible light tints at a glance, or by lifting off the four top layers (or whatever number you elect to have in your scheme) view all the pure colors and all gray tones thereof at a glance. This would be simplicity itself. Meanwhile this mental or "mnemonic" color-file will be found indispensable.

A PRACTICAL SYSTEM OF COLOR DESIGNATION

A Partial Critique of Ridgway's "Color Standards and Nomenclature"

By WILLIAM LEON DAWSON

WE ARE UNDER deep and lasting obligation to Mr. Ridgway for having brought order out of chaos in the standardization of color. He has shown a comprehensive grasp of the whole color problem, and has brought to its solution a practical sagacity never before equalled. Thanks to him we have at last a real color key. The first edition of "Color Standards and Nomenclature" might have been a hundred thousand copies instead of one thousand if attention could first have been properly aroused to this most exquisite and intimate of human interests, color appreciation. However, we are overjoyed to see an authoritative beginning made. The practical standardization of color has been accomplished; but the same cannot be said of the equally practical (though perhaps not equally important) standardization of color names. The reason for this is apparent. Color names have arisen singly and at haphazard, according to the convenience, or necessity, or caprice of the individual. Collectively, they have come down to us with a thousand varying sanctions of experience, of poetry, and nature and all the handicrafts besides. For every color name that has lived, a dozen have been still-born, or died in infancy. To make selection from this motley host is not only to be arbitrary and capricious, by reason of the thousands of other names rejected, but it is to fail in the fundamental purpose, which is to fix concepts in their necessary relations.

Now the function of language is to communicate thought, ideas. This it does by the use of words, words which are chiefly the symbols of a common experience. The more established the value of the component words, *i. e.*, the more certain their appeal to common experience, the clearer the language, the more

readily understood the thought. But words not only symbolize experiences: they indicate relationships; they point out the way to other experiences. If they *relate themselves* to common experience, they become intelligible, even though the experience connoted by the word itself is a new one. Words must either record common experience, or point out the way to such experience, or remain unintelligible.

Now this is the trouble with color names, even those employed in Ridgway's new Nomenclature of Color. They do not appeal to common experience. They are so recondite or so arbitrary, or so fanciful as to be incommunicable, save to specialists as highly trained as Ridgway himself. They are not only meaningless to such as do not possess the "key," they are so unrelated in thought that they can be found or re-found in the book itelf only by constant reference to the index. Thus, "Hermosa Pink" is in the red series; "Bittersweet Pink" in the orange series; "Phlox Pink" in the violet series, etc. "Chatanay Pink" crops up in the gray-toned tint of Scarlet-red; and "Tourmaline Pink" among the double-gray-toned tints of Rhodamine Purple. Pink does suggest redness, so that one does not need to hunt outside of the twelve hues between Violet-Red and Red-Orange; but here are several hundred possibilities; and it will puzzle the student to find, save through the index, Patent Blue or Acetin Blue or Corydalis Green or Mytho Green or Asphodel Green, even with the basic hue named outright. These names may be found to be exact when you have arrived, but there is nothing about them which points the way to the inquirer. Such names do not appeal to common experience, and they contain only the smallest suggestions of relationship.

It is quite conceivable that a student, preferably a younger one, should memorize this entire list, should master it so that he could recognize and name a color at sight; but even so his report would be unintelligible to any one else who had not similarly mastered this Chinese alphabet of color. He would still require color terms by which it would be possible to communicate his impressions to the general reader.

If this is ever to be done the basic names of color nomenclature must be simplified in character and reduced to the lowest terms, and all other color names must be so constructed as to point clearly to the nearest base. This is no easy matter. Perhaps it cannot be done. Perhaps, however perfectly done, the public would not stand for it, any more than they would have stood for Volapük or Esperanto or the other honest attempts to provide a universal language. But unless it is done, technical descriptions, as of bird plumage, couched in the color terms of the new key, will remain in sealed books.

I have no such ideal system to propose. That is a matter which might well engage the profound attention of influential learned bodies. Doubtless, no one is more conscious of this fundamental requirement of color nomenclature than Mr. Ridgway himself, but he was too modest to advocate such a sweeping change. Nevertheless, he has pointed out one way, through the use of descriptive adjectives where established names were lacking—ideally in the case of Neutral Gray, whose successively diminishing tints are designated as light neutral gray, pale neutral gray, and pallid neutral gray; and whose deepening shades are deep neutral gray, dark neutral gray, and dusky neutral gray. This suffices when we wish to refer to a norm only three points away, but it would break down of sheer cumbersomeness if we wished to refer back through successive gray dilutions to the normative hue.

But some way *must* be found around the difficulty—for thought, if not for printed description. Because of this necessity I am emboldened to describe my own

thought process and to record the terms by which I seek to make a color name clear to my own apprehension. Accepting Ridgway's arrangement and spacing of colors as a practical fixity, and referring all colors to the thirty-six-hue base, I designate the three diminishing tints of each local base as tint, half-tint, and quarter-tint, respectively; and the shades as shade, double-shade and triple-shade, respectively. This is not accurate in either case if we base our comparison upon percentages of black or white, but it is practically correct if we appeal to the eye and that is what we are after. In like manner referring back to the normative hues all successive changes affected by additions of neutral gray, I speak of gray (32%), double-gray (58%), triple-gray (77%), quadruple-gray (90%), and quintuple-gray (95.5%)—the last two, of course, rarely required. In this way, the blue of a Valley Quail's breast designated in the text of Ridgway as Light Payne's Gray, is thought of as the double-gray half-tint of Spectrum Blue; and the buffy of its lower breast, known as Light Buff, is related in thought to the Cadmium Yellow base by saying that it is the gray quarter-tint of that hue. It is thus clearly differentiated from "Cartridge Buff" or "Tilleul Buff", which are as truly light-buffies, but which differ very materially in quality from the arbitrarily named Light Buff.

In *analyzing* a color, that is, in seeking to arrive at its proper designation, the reverse of this process is of the utmost importance. One first decides upon its basal or distinctive element, then estimates the relative admixture of gray, then turns expectantly to the appropriate column to determine the tint or shade. As a novice I should never by any possibility have guessed that a Valley Quail's breast is light Payne's Gray (indeed, I suspect I shall die in ignorance of the difference connoted by the *names* Payne's Gray and Puritan Gray), but I did guess first off, within one point, that it was a double-gray quarter-tint of Spectrum Blue. A brief experience leads me to the belief that this logical process will always be followed, in practical disregard of arbitrary names. For this provision of a logical method of color inference, we are immeasurably indebted to our foremost living ornithologist, Robert Ridgway.

PRELIMINARY REPORT UPON THE DISEASE OCCURRING AMONG THE DUCKS OF THE SOUTHERN SAN JOAQUIN VALLEY DURING THE FALL OF 1913

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WITH ELEVEN PHOTOGRAPHS AND ONE DIAGRAM BY THE AUTHOR

ABOUT the month of August, 1909, a fatal epidemic broke out among the water birds, especially among the ducks, of the vicinity of Soleta Lake, which lake, now dry, was situated about thirty-five miles southeast of Tulare Lake. This epidemic, gradually spreading, raged throughout the hot part of the season till the cool weather of the fall, when it ceased. At this time Soleta Lake was quite stagnant, becoming more so until it finally dried up some two or three years later. There were reports of a fatal disease among the water birds the year before, but little attention was paid to them.